DOCUMENT RESUME

ED 369 633 RC 019 603

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TITLE Overcoming Barriers in the Use of Adaptive and Assistive Technology in Special Education.
PUB DATE Mar 94
NOTE 9p.; In: Montgomery, Diane, Ed. Rural Partnerships: Working Together. Proceedings of the Annual National Conference of the American Council on Rural Special Education (ACRES) (14th, Austin, Texas, March 23-26, 1994); see RC 019 557.
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Administrator Attitudes; *Assistive Devices (for Disabled); Change Agents; Disabilities; *Educational Change; Educational Technology; Elementary Secondary Education; *Leadership Styles; *Resistance to Change; Rural Schools; *Special Education; Teacher Attitudes; Transitional Programs

ABSTRACT

This paper examines change and change facilitators as they affect full use of adaptive and assistive technology (AAT) in special education, and compares qualitative versus quantitative methods of researching the change process. Four administrators and two teachers from a rural school district completed the Stages of Concern Questionnaire, which locates participant attitudes about change or innovation on a seven-stage continuum, and the Academic Administrator Grid, which assesses leadership styles of educational professionals. Researchers then interviewed the participants using the Facilitating Change with Adaptive and Assistive Technology Questionnaire, which aims to discover underlying barriers to the use of AAT. Results show that the district was in the Level-1 Stage of Concern of a seven-stage model of change, indicating that it was still at the information-gathering stage concerning AAT. The majority of participants rated themselves as "Team Administrators," a style of leadership conducive to change. Participants expressed financial concerns about AAT, and did not agree on specific policies. Findings indicate that both quantitative and qualitative research methods are necessary for this complex issue. (KS)

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ED 369 633

OVERCOMING BARRIERS IN THE USE OF ADAPTIVE AND ASSISTIVE TECHNOLOGY IN SPECIAL EDUCATION

Emerging trends indicate that students in Special Education will need "intensive and innovative educational efforts" to be initiated in order for these students to compete in the workplace after graduation (Woodward, 1992, p.8). Sloane (1989) stated that technology for students in Special Education can be a great equalizer when competing with non-disabled peers. Public Law 101-476, Individual's Disability Education Act, mandates a change be made in the area of adaptive and assistive technology (AAT). Individuals with disabilities are to be given access to technology that may benefit them educationally; however, the topic of technology causes a degree of concern in many of the professionals involved for several reasons.

While few disagree with the potential benefit to the students involved, various reasons for the lack of use of technology in Special Education exists. Three categories of problems are teacher concerns, funding feasibility and concerns about change. The teachers' concerns tend to center around how AAT affects them personally. According to Brady and Langford (1986), teachers have viewed mastering the various forms of AAT as difficult. The constant changes in the latest technology provide a general lack of knowledge of what's available. These constant changes in turn can cause a problem with mastering the latest technology, including the jargon. Some teachers feel there are few personal or professional rewards involved with AAT.

Funding is a second cause for concern since school funding is limited and AAT is often very expensive. Most school districts, which have budgets for AAT, have a limited budget to spend. According to Woodward (1992), decreasing technology budgets may cause a shift away from technology. These are all very real concerns for professionals; however, one of the major problems with implementing technology is the concern about change.

Change can be a cause of concern for anyone, especially professionals venturing into the unknown. The magnitude of the problem concerning change and AAT is not easily protrayed because of a lack of statistical information on school districts using AAT, but, several authors have addressed the issue. Brady and Langford (1986) wrote specifically about the concerns over change, created by AAT, for principals, administrators, and teachers. These concerns were addressed in the previous paragraph. In the past decade, there has been much research concerning change within a school system.

One study, Dessemination Efforts Supporting School Improvement (DESSI), reported the following findings in 1982 (Hord, 1992). According to this study, five factors were needed for teachers to successfully implement change. Curricular and instructional guidelines must be clearly defined and developed. Training must be credible. The teachers involved must be committed to the change. A fourth factor is

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the provision of continuous support and assistance for the teachers. Finally, administrators must provide firm guidance and assistance.

Similarly, a study on school administrators in 1975 by Berman and McLaughlin indicated that the principal's support is a primary factor in the successful implementation of change (Boyd, 1992). "The principal's contribution to implementation lies in giving moral support to the staff and in creating a culture that gives the project 'legitimacy' rather than in 'how to do it' advise" (Boyd, 1992, p. 6). The principal's support lends an attitude of seriousness to the project or change. At the same time, the principal is available to provide resources in addition to moral support.

Lack of statistical data makes it difficult to determine how much AAT is utilized in the schools. Concerns over change may be one of the deciding factors on the utilization of AAT within school districts. This study will explore several aspects of this topic. Quantitative information on how schools are using or not using AAT will be collected. Leadership styles will be explored to determine the effects of certain styles on change. In addition, a qualitative approach will be used to determine views of AAT and to discover some possible unknown aspects of the problem. An attempt will be made to discover any link between an individual's leadership style, placement within the Stages of Concern, and perceptions concerning AAT policies.

Change Concerns/Facilitation

Various approaches have been utilized when a change is warranted or desired. Historically, changes were viewed organizationally. More recent attention has placed the focus of change on people (Hord, 1992). Literature on the subject suggests that people are often resistant to change. One example of this in the business industry is found in the automobile industry (Martel, 1986). Cheverolet, Ford, and Chrysler followed similar business strategies. Each year, the former year's car model was given a few changes to create a slightly bigger and better car that would provide more profit for little investment. The strategy worked until people decided they wanted a smaller, more economic car, due to rising fuel costs. These manufacturers refused to make the change indicated by the people, because of a lack of profit at the time. Foreign car manufacturers managed to get a foothold in the American car economy with small, economic cars. With a focus on the people involved in the change, foreign car manufacturers won and kept a place in the American car industry. It is conceivable that, had the American car manufacturers made the changes indicated by the people, they would have remained the leaders in the car industry in America.

Education has seen a similar response to change. During the past few decades, change has been approached from various angles. Basically, the two areas targeted for change by these approaches are the organization and the people. Chin and Benne, House, and Sashkin and Egermeier described three models of change (Hord, 1992). Each of the three models were similar in characteristics. An assumption, within the first model, is that individual's are basically rational and will make whatever changes are right. The second model focuses on using some power, such as legislative or moral, to force the individual to change. The third category views the individual as an active participant in the change process. According to Hord (1992) each of these models is still being used by educators. Research indicates, however, that the first and second models

of change, while widely used, are showing few results. The third model, with the focus on people as change agents who have decision-making power, has shown more success, therefore, indicating a change of focus is needed.

A longitudinal study of change and change facilitators resulted in the creation of the Concerns-Based Adoption Model (CBAM) which contains a focus on the people aspect of change (Hord, 1992). CBAM is based on assumptions that change is a process which involves personal growth. Personal experiences with change cause change to occur at different rates. CBAM contains three components which include the following: 1) Stages of Concern, (how people react to or feel about change); Levels of Use, (how individuals behave relative to change); and Inovation Configuration (how the change is being put into effect in classrooms and schools. For this study, CBAM has been adapted to relate to the field of Adaptive and Assistive Technology. One focus of this model is on the change facilitator, who is often in a leadership position.

One link that is present in any undertaking of change is leadership. Leadership styles, according to research, seem to have an effect on implementation of changes (Hord, 1984; Hall, 1987; Avi-Itzhak & Ben-Peretz, 1987; Hord, 1991; and Mendez-Morse, 1993). Three basics styles of leadership have been identified by Hall (1987); Initiator, Manager and Responder. Hord (1984) defines these styles in the following terms: "the initiator makes it happen, the manager helps it happen, and the responder lets it happen." Research indicates that the initiator and manager styles lead to change more often (Hord, 1984).

Blake, et al (1982) created the Academic Administrator Grid which is based on two basic concerns that administrators have: 1) concern for institutional performance and 2) concern for people. The Grid contains five styles of leadership ranging from *Team Administrator*, who places a high value on performance and people, to the *Caretaker Administrator*, who places very little value on performance or people. Each of the five leadership styles center around these two concerns; however, they vary in which concern holds the most importance. A description of each style is contained in a later section.

Research Concerns

Several concerns for researching change in relation to AAT exist. Implementing AAT requires reconceptionalization of service delivery. When reconceptionalizing, change is involved. Historically change has been found to be an obstacle with an innovation. Change can be a barrier to the use of AAT, but successful change has occurred in other areas. Using quantitative methods is difficult because no data are available for the hypothesis. Qualitative methods open up as a viable option. The qualitative method is designed to explore and extend the topic were little research and few studies have occurred.

Purpose

The lack of use of technology in Special Education may be due to the perceptions of change and the placement of education professionals within the Stages of Concern. This is an exploratory study designed to research the aspect of change as it relates to

AAT. A second purpose of this study is to look at the feasibility of a qualitiative study versus a quantitative study in research concerning the change process and to ascertian whether the same information is gathered from each type of study. The comparison of quantitative and qualitative methods will be developed through the following methodology.

Methodology

This pilot study was conducted in a rural school district. This school district has five elementary schools, one junior high school and one high school. Six individuals participated in the study.

Participants

Six individuals were interviewed. These individuals consisted of four administrators (three district level and one principal) and two teachers. Both teachers are female. Two of the administrators are female and two are male. Respondents had been in the district an average of 7 years. Amount of teaching experience ranged from 6 months to 36 years, with an average of 17.4 years. All administrators had earned a Masters's degree and both teachers had Bachelor's degrees.

In the area of AAT, knowledge and use differed. Two out of four administrators indicated they had been involved with AAT at least 4 years. One administrator had been involved with AAT for 2-3 years. One administrator was not involved with AAT at all. Both teachers stated that they had worked with AAT about 1 year. Of the administrators, three considered themselves novices and one a nonuser. One teacher considered herself to be a novice, while the other considered herself to be at the intermediate level. Only one of the six respondents had ever received formal training with AAT.

Research Instruments

Each individual instrument will be addressed in this section. The first instrument to be discussed is the Stages of Concern Questionnaire. The second section will be on the Academic Administrator Grid. The final section will address the Facilitating Change with Adaptive and Assistive Technology Questionnaire.

Stages of Concern Questionnaire (SoCQ). The SoCQ focuses on the placement of people regarding their concerns about change or an innovation. The SoCQ was created after three and a half years of research on changes within schools. The questionnaire was adapted to relate specifically to changes related to AAT. Each questionaire consists of 35 statements. Participants rated these statements on a scale of 0-7. Low numbers indicate a lack of concern, whereas high numbers indicate high concern.

Once completed, the results were tabulated according to a worksheet provided. Five statements are representative of each of the seven stages. The sums of the scores for each of the five statements in each stage represents the raw score. These raw scores are converted to percentiles, using a table, and are then graphed for visual display.

Academic Administrator Grid. The Grid was designed to pinpoint leadership styles for professionals in the field of education. More specifically, the Grid was created to

demonstrate effective leadership styles within the educational environment. The vertical line of the Grid depicts Concern for People and uses coordinates one through nine. The horizontal line represents Concern for Institutional Performance and also uses coordinates one through nine. The first of the five styles of leadership is the *Caretaker Administrator* who has little concern for people or performance. The *Authority-Obedience Administrator* has a low concern for people and a high concern for performance. The *Comfortable and Pleasant Administrator* is characterized by a high concern for people and a low concern for performance. Balancing morale and performance is preferred by the *Constituency-Centered Administrator*. Finally, the *Team Administrator* displays a high concern for people and performance and is viewed as a facilitator of change.

Facilitating Change with Adaptive and Assistive Technology Questionnaire (AATQ). In an attempt to discover underlying barriers to the use of AAT, a qualitative questionnaire was created. This questionnaire focuses on participants perceptions of four general issues concerning AAT. The first issue addressed was school district policies about AAT and participants' perceptions of these policies. Secondly, decision making processes concerning AAT within the district was explored. Next, staff development and support services for AAT were addressed. Finally, participants' views about change within the education system and their role in the change were discussed.

Four general questions, concerning policies, were asked of all participants. Administrators were asked ten additional questions specific to their roles in the district with regard to AAT. The teachers were asked five additional questions specific to their roles concerning AAT.

Procedures

Each respondent participated in an interview. Three of the respondents requested anonymity. All instruments were administered during the interview. Before each instrument, directions were given for completing the forms. No time limits were imposed. The SoCQ and Academic Administrator Grid were given before the AATQ. When the first two instruments were completed, the third instrument was administered in an interview format. An attempt was made to write down all of the respondents' answers during the interview.

Results

Results of the three instruments were closely related in several instances. According to a qualitative instrument, several types of administration styles were present in this school district ranging from *Team Administrator* to the *Comfortable and Pleasant Administrator*. The majority of the participants rated themselves as *Team Administrators*, indicating a preference for team leadership and productivity. This seems to hold true for this school district, as most decision-making seems to be made by teams, according to the AATQ. This style of leadership, however, does not guarantee that changes will be made quickly as was noted on the results of the SoCQ. Five respondents stated that changes were needed, but wanted only gradual change. One administrator felt the people most affected by the change should facilitate it. Two participants indicated a need for radical restructuring of the teaching process was required for successful implementation of AAT.

The district has several teams designed to provide the district with technology; bases on the scores from the SoCQ, changes appears to be a major barrier. Results show that the district is aware of and concerned with AAT, but it is not the main priority. In a seven stage model, levels 0-6, schools who are successfully implementing and integrating AAT should score at minimum level 6. For this school district, the overall group mean score was in Level 1, Stage of Concern, indicating they were still at the information gathering stage concerning AAT. One respondent remarked that many people are "talking the talk, but not walking the walk" indicating that more is being said about AAT than is being done.

The AATQ, a qualitative instrument, gave insight into several issues that were present in this district. While the participants did not agree on the specific policies concerning AAT, four indicated that the school district supplied whatever the students needed. Financial consideration was an issues. A specific budget for AAT was mentioned by four participant; however, this was a small portion of the overall technology budget for the entire district. One respondent expressed concern that the district was "robbing Peter to pay Paul" by using so much money for the benefit of one student when it could be spent to benefit many students.

Indications

The primary objective of this study was to explore change as it relates to AAT. As indicated above, results are positive toward change as a variable in the acceptance and utilization of AAT. The secondary objective of this study was to discover if the same information could be gathered from qualitative and quantitative methods. Due to the complexity of the issue, a combination of qualitative and quantitative methodolgy is indicated. The SoCQ and the AATQ were somewhat similar in their findings. Both indicated the school district was still in the early stages of change concerning AAT. The second questionnaire gave more insight into participants' views and school district practices. Many barriers to the use of AAT in the schools exist. One of the strongest barriers seems to be a willingness to change personal perceptions and school systems. Perhaps this barrier needs to be removed before the others barriers can be dealt with effectively.

In this case, the Academic Administrator Grid results seemed to agree with the participants' responses on the AATQ regarding leadership styles. Both indicated a preference for team leadership within the school district. The AATQ provided additional insight into types of teams and their responsibilities.

It would be wise to use caution since this data is based on one district and only a few participants; however, results were constant. It is important to recognize the global aspects of this research, not just the specific. The automobile industry mentioned earlier refused to make the indicated changes and suffered the consequences then and continue to be affected by those decisions. A positive aspect of this research is that administrators are aware of the issues of AAT and many know that change is imminent. The administrators in this study seemed to be proactive toward change in most areas. Perhaps AAT will begin to emerge as a more prominent feature in the education of students with special needs in this district as well as others.

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